

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Previously Presented) A pumping system comprising, in combination:
a source of fluid for selective pressurization;
a hydraulic mechanism structurally configured to apply high pressure to said fluid,
the hydraulic mechanism comprising a trigger pivotally mounted within a housing, the
housing including valves mounted therein that control the movement of fluid and also
including a manually operable actuator at a position distal to the trigger on the end of the
housing allowing manual pressure release by one hand of a user while holding the housing
in the same one hand, the manually operable actuator selectively releasing pressure on said
fluid within a conduit by releasing at least a portion of said fluid out of the conduit and
external to the fluid source;
the conduit selectively carrying said fluid from said source when said fluid is
pressurized, and
a container of a viscous material connected to said conduit to receive pressurized
fluid from said conduit to selectively force said viscous material from said container.
2. (Original) The system recited in claim 1, wherein the conduit is a flexible tube.
3. (Original) The system recited in claim 1, wherein said source of fluid comprises a
reservoir for storing said fluid.
4. (Original) The system recited in claim 1, wherein said fluid is an incompressible
liquid.

5. (Withdrawn) The system recited in claim 1 wherein, said container comprises a syringe.

6-8. (Canceled)

9. (Previously Presented) The system recited in claim 1 including, connector means for connecting said conduit to said container wherein the connector means rotates about said conduit to permit selective bleeding of air from said container.

10. (Withdrawn) The system recited in claim 9 wherein, said connector means rotates about said conduit to permit selective bleeding of air from said container.

11. (Withdrawn) The system recited in claim 5 wherein, said syringe includes a plunger movable therein.

12-14. (Canceled)

15. (Withdrawn) The system recited in claim 10 wherein, said connector includes, a hollow housing for receiving an end of said conduit through an axial opening therein,

a set screw threadedly engaged with the interior of and hollow housing and surrounding said end of said conduit,

seal means surrounding said end of said conduit, said set screw adapted to force said ferrule means and said seal means into contact with the interior of said hollow housing to provide a seal around said conduit in said hollow housing.

16. (Previously Presented) The system of claim 1, where the system operates at moderate to high pressures ranging from at least about 1,000 psi to 2,000 psi.

17. (Previously Presented) The system of claim 1 wherein, said conduit is long enough to permit a user/surgeon to be outside of a radiation field of a patient being imaged.

18. (Previously Presented) The pumping system of claim 17, further comprising valves within the housing for controlling the movement of said fluid from said source of fluid through said conduit whereby and, a connector which is capable of rotating around the conduit and bleeding off of any air present when the system is operating, both manually and automatically.

19. (Previously Presented) An improved system for operating a hydraulic pressure pump for medical usage, comprising:

- a hand-piece with a housing having a lever operated hydraulic pump, a fluid reservoir, and a manually operable actuator to selectively release pressure in the system;

- a connecting tube extending from the housing, wherein the manually operable actuator selectively releases pressure on said fluid within the connecting tube by releasing at least a portion of said fluid out of the connecting tube and external to the fluid reservoir;

- a remote connector at an end of the connecting tube which seals to a syringe body;

whereby the pump expels fluid from the fluid reservoir, through the connecting tube into the top of the syringe and where fluid presses on a syringe plunger, thereby expelling the material contained in a primary chamber of the syringe therefrom; and

- a low viscosity, secondary incompressible fluid is used in the connecting tube lowering the force required to expel material from the syringe, and reducing the volume of injected fluid needed.

20. (Currently Amended) The improved system for operating a hydraulic pressure pump ~~for, for~~ medical usage ~~of, of~~ claim 19, wherein pressures ranging from at least about 1,000 psi to 5,000 psi allow a user to perform procedures in the spine of a patient.

21. (Previously Presented) A hand-held pumping system comprising:

- a source of fluid for selective pressurization;

a housing means for containing the source of fluid;
a mechanism for applying pressure to said fluid;
a flexible conduit for selectively carrying said fluid from said source when said fluid is pressurized;
a container of a viscous material connected to said conduit to receive pressurized fluid from said conduit to selectively force said viscous material from said container; and
a pressure release mechanism connected to said housing means for selectively relieving pressure from said fluid in said conduit by releasing at least a portion of said fluid out of the conduit and external to the fluid source.

22. (Previously Presented) The system recited in claim 21 including handle means for supporting said source of fluid.

23. (Previously Presented) The system recited in claim 22 wherein said mechanism for applying pressure to said fluid comprises, trigger means mounted to said handle means for selectively applying pressure to said fluid in said source of fluid.

24. (Previously Presented) The system recited in claim 23 including:
housing means formed with said handle means; and
valve means mounted in said housing means for controlling the movement of said fluid from said source of fluid through said conduit.

25. (Previously Presented) The system recited in claim 21 including a connector means for connecting said conduit to said container, said connector means rotates about said conduit to permit selective bleeding of air from said container.

26. (Previously Presented) The system recited in claim 21 including:
valve means mounted in said housing means for controlling the movement of said fluid from said source of fluid through said conduit; and
connector means for connecting said conduit to said container.

27. (Currently Amended) The system recited in ~~claim 27~~ claim 25, wherein said connector means includes:

- a hollow housing for receiving an end of said conduit through an axial opening therein;
- a set screw threadedly engaged with the interior of said hollow housing and surrounding said end of said conduit;
- seal means surrounding said end of said conduit; and
- ferrule means surrounding said end of said ~~[[c]]~~ conduit,

said set screw adapted to force said ferrule means and said seal means into contact with the interior of said hollow housing to provide a seal around said conduit in said hollow housing.

28. (Previously Presented) The system recited in claim 21, wherein the pressure release mechanism comprises a valve, and wherein the pressure release mechanism is pivotally rotatable about a pin connection to release the valve.

29. (Previously Presented) The system recited in claim 21, comprising a relief valve between the source of fluid and the pressurized fluid for automatically releasing fluid to the source of fluid when the pressure exceeds a threshold, wherein the pressure release mechanism is disposed to release pressure from the conduit and wherein the relief valve is disposed to release pressure from a fluid chamber pressurizable by the trigger means.